

REMARKS

The application includes claims 1-38 prior to entering this amendment.

The examiner objects to the drawings under 37 C.F.R. § 1.121(d).

The examiner objects to claim 15 because of informalities.

The examiner rejects claims 1-3, 7-15, 21-23, 27-32, and 36-38 under 35 U.S.C. § 103(a) as being unpatentable over Farrell, et al. (U.S. Pub. No. 2006/0098586), in view of Adhikari, et al. (U.S. Pub. No. 2004/0252646).

The examiner rejects claims 4, 24, and 33 under 35 U.S.C. § 103(a) as being unpatentable over Farrell in view of Adhikari and Hefel, et al. (U.S. Patent No. 5,563,875).

The examiner rejects claims 5, 6, 25, 26, 34, and 35 under 35 U.S.C. § 103(a) as being unpatentable over Farrell in view of Adhikari and Makowski, et al. (U.S. Pub. No. 2004/0240431).

The examiner rejects claims 16-18 under 35 U.S.C. § 103(a) as being unpatentable over Farrell in view of Wen, et al. (U.S. Patent No. 6,947,381).

The examiner rejects claim 19 under 35 U.S.C. § 103(a) as being unpatentable over Farrell in view of Wen and Makowski.

The examiner rejects claims 20 under 35 U.S.C. § 103(a) as being unpatentable over Farrell in view of Wen and Adhikari.

The applicant amends claims 1, 3-6, 8, 10-12, 15, 19, 21, 23-26, 28, 30, 32-35, and 37.

The applicant adds new claims 39-46.

The application remains with claims 1-46 after entering this amendment.

The applicant adds no new matter and request reconsideration in view of the following remarks. The applicant points out that the claimed subject matter may be patentably distinguished from the cited reference(s) for multiple reasons; however, the following remarks are believed to be sufficient. Likewise, it is noted that the applicant's failure to comment directly on any of the positions asserted by the examiner in the office action does not indicate agreement or acquiescence with those asserted positions.

Drawing Objections

The examiner objects to the drawings under 37 C.F.R. § 1.121(d). The applicant attaches, as an appendix to this paper, amended drawings to overcome this objection and to fix a typographical error in Fig. 1A.

Claim Objections

The examiner objects to claim 15 because of informalities. The applicant thanks Examiner Yuen for pointing this out, and notes that the rejection is now moot in light of the amendments to claim 15.

Claim Rejections - 35 U.S.C. § 103

The examiner rejects claims 1-3, 7-15, 21-23, 27-32, and 36-38 as being unpatentable over Farrell in view of Adhikari. The examiner rejects claims 4, 24, and 33 as being unpatentable over Farrell in view of Adhikari and Hefel. The examiner rejects claims 5, 6, 25, 26, 34, and 35 as being unpatentable over Farrell in view of Adhikari and Makowski. The examiner rejects claims 16-18 as being unpatentable over Farrell in view of Wen. The examiner rejects claim 19 as being unpatentable over Farrell in view of Wen and Makowski. The examiner rejects claims 20 as being unpatentable over Farrell in view of Wen and Adhikari. The applicant traverses the rejections for the reasons that follow.

Claims 1 and 30 recite (emphasis added):

varying a Time To Live (TTL) value in a trace packet addressed to a destination endpoint to intentionally cause an intermediate node other than the destination endpoint in the packet switched network to send back a packet expiration notice; and
receiving an intermediate node time value in the packet expiration notice
indicating when the intermediate node received the trace packet.

Claim 10 recites (emphasis added):

a processor sending a packet addressed to a destination endpoint that intentionally causes an intermediary node other than the destination endpoint to send back a message containing an intermediate node timestamp value identifying when the packet reached the intermediate node.

Claim 21 recites (emphasis added):

means for varying a Time To Live (TTL) value in a trace packet addressed to a destination endpoint to intentionally cause an intermediate node other than the destination endpoint in the packet switched network to send back a packet expiration notice; and

means for receiving an intermediate node time value in the packet expiration notice indicating when the intermediate node received the trace packet.

Regarding claims 1, 21 and 30, the examiner indicates:

However, Farrell et al. did not disclose the method of receiving an intermediate node time value in the packet expiration notice indicating when the intermediate node received the trace packet. Adhikari et al. from the same or similar fields of endeavor teaches the method of receiving an intermediate node time value in the packet expiration notice indicating when the intermediate node received the trace packet (see paragraph 0090, lines 1-10).¹

The Office Action goes on to describe Adhikari's method of determining packet travel time between predetermined *source and destination* endpoints A and B by addressing a packet from A to B.² The Office Action similarly relies on Adhikari in the rejection of claim 10³. Respectfully, this is not the same as the applicant's "trace packet addressed to a destination endpoint to intentionally cause an intermediate node other than the destination endpoint ... to send back a packet expiration notice" with "an intermediate node time value in the packet expiration notice" (emphasis added, as recited in claims 1 and 30, with similar elements in claims 10 and 21).

The applicant points out that Farrell has no teachings regarding timestamps in packets. Farrell discloses receiving error messages in a form of Internet Control Message Protocol (ICMP) time exceeded messages, but these messages are not disclosed by Farrell to contain a

¹ Office Action, page 4.

² Office Action, page 4.

³ Office Action, pages 6-7.

timestamp. Further, RFC 792 which defines the “Internet Control Message Protocol,” does not disclose timestamps in ICMP time exceeded messages. Farrell also teaches that delay is measured in a round-trip fashion, which further supports Farrell’s lack of timestamps at other than the sending endpoint:

By measuring the time between when an application packet is sent and when the error notification is received, it is also possible to determine a delay for each internodal segment on the route.⁴

The applicant further points out that three of the references cited in the rejections disclose a use of timestamps applied by endpoints. Adhikari discloses (emphasis added):

As indicated previously, a given synthetic call from an endpoint A to an endpoint B generally comprises a sequence of packets going from A to B and back to A. As the packets travel, they may be dropped by the network. In the illustrative embodiment, as A sends a packet *i* to B, A writes the departure time *S.sub.i* from A in the packet itself. When B receives the packet, it writes the arrival time *U.sub.i* in the packet. B immediately sends the packet back to A, writing the departure time *V.sub.i* from B in the packet. When A receives the packet, it writes the arrival time *T.sub.i* in the packet. The result is the four timestamps *S.sub.i U.sub.i V.sub.i T.sub.i* from which one-way delay and jitter measurements are derived.⁵

Makowski discloses (emphasis added):

The bearer path assurance test also includes sending a reply from the terminating office 16b to the originating office 16a containing the originating office timestamp at 56. In accordance with the Internet Control Message Protocol (ICMP) Internet Program Protocol Specification, the data received in the ICMP Echo Request by the terminating office 16b is returned in the ICMP Echo Reply. Placing the timestamp from the originating office 16a in the optional data field of the ICMP Echo Request results in an ICMP Echo Reply message which also contains the timestamp generated by the originating office 16a.⁶

Makowski further discloses a similar procedure using an RTP packet sent from an originating office, causing a terminating office to loopback the RTP packet.⁷

Similarly, Hefel also discloses a system where a timestamp is sent round-trip between an originating node and a specified wrap-around node.⁸

Neither Adhikari, Makowski, nor Hefel teach or suggest having a timestamp in an expiration message.

⁴ Farrell, paragraph [025].

⁵ Adhikari, paragraph [090].

⁶ Makowski, paragraph [032].

⁷ Makowski, paragraph [037].

⁸ Hefel, col. 54 line 47 through col. 6 lines 5.

Neither Adhikari, Makowski, nor Hefel teach or suggest providing a timestamp in response to receiving “an expiration value.”

Neither Adhikari, Makowski, nor Hefel teach or suggest that a timestamp is provided in a packet other than by an originating node or by an explicitly addressed node.

Claims 1 and 30 (with similar elements in claims 10 and 21) recite a packet expiration notice sent by an intermediate node with “an intermediate node time value in the packet expiration notice,” and further that the intermediate node is “other than the destination endpoint.” None of cited references teach or suggest, either alone or in combination:

having a timestamp in an expiration message, or

that a timestamp is provided in a packet other than by an originating node or by an explicitly addressed node.

In particular, the applicant points out that none of the cited references teach or suggest that an intermediate node (specifically, a node that is “other than the destination endpoint”) is enabled in any fashion to provide “an intermediate node time value in the packet expiration notice” “indicating when the intermediate node received the trace packet” (as recited in claims 1 and 30, with similar elements in claims 10 and 21).

Accordingly, as none of the cited references, either alone or in combination, teach or suggest all of the elements of any of the applicant’s claims 1, 10, 21, or 30, claims 1, 10, 21, and 30 are in condition for the examiner’s allowance for at least this reason.

Claim 16 recites (emphasis added):

a processor configured to receive a trace packet containing an expiration value causing the processor to discard the trace packet and generate an expiration message that identifies a time value associated with when the trace packet was received by the processor.

The examiner indicates that Farrell teaches all of the elements of this claim, except:

However, Farrell et al. did not disclose the method of discard expired packet. Wen et al. from the same or similar fields of endeavor teaches the method of discard expired packet (see column 2, lines 1-5).⁹

Respectfully, the applicant’s claim 16 does not read on Farrell, alone or in combination with Wen.

There is no disclosure in Farrell, either alone or in combination with Wen, of “an expiration message that identifies a time value associated with when the trace packet was received.” Further, for the reasons indicated with regard to the rejection of claims 1, 10, 21, and 30, none of cited references teach or suggest, either alone or in combination:

having a timestamp in an expiration message, or

providing a timestamp in response to receiving “an expiration value.”

In particular, the applicant points out that none of the cited references teach or suggest “a processor configured to receive a trace packet containing an expiration value causing the processor to ... generate an expiration message that identifies a time value associated with when the trace packet was received by the processor” as recited in the applicant’s claim 16.

Accordingly, as Farrell and Wen, either alone or in combination, and considering Adhikari, Makowski, and Hefel, do not teach or suggest all of the elements of the applicant’s claim 16, claim 16 is in condition for the examiner’s allowance for at least this reason.

As dependent claims 2-9, 11-15, 17-20, 22-29, and 31-38 incorporate all of the elements of a respective one of independent claims 1, 10, 16, 21, and 30, dependent claims 2-9, 11-15, 17-20, 22-29, and 31-38 are in condition for the examiner’s allowance for at least this reason.

New Claims

New claims 39-41 are dependent on a respective one of independent claims 1 and 16. As independent claims 1 and 16 are allowable per the remarks above, dependent claims 39-41 are also in condition for the examiner’s allowance for at least this reason.

Further, with regard to claim 40, the applicant points out that claim 40 recites:

wherein the Network Time Protocol (NTP) timestamp value is placed in an unused field of the ICMP message.

None of the cited references, either alone or in combination, teach or suggest that a timestamp value is placed in an unused field of an ICMP message. Makowski teaches using ICMP echo and echo reply messages, where the timestamp is part of a specified data (payload) field.

Accordingly, as none of the cited references teach or suggest this element, claim 40 is also in condition for the examiner's allowance for at least this reason.

Further, regarding claims 39 and 41, the applicant points out that claim 39 recites:

wherein the trace packet is part of a same media stream as the RTP payload packets.

(with similar elements in claim 41). None of the cited references, either alone or in combination, teach or suggest that measurements are performed on an active media stream (one having payload packets). Makowski, for example, teaches sending Makowski's "bearer path assurance test" during a call setup phase, but not actively during transmission of payload packets. Accordingly, as none of the cited references teach or suggest this element, claims 39 and 41 are also in condition for the examiner's allowance for at least this reason.

New claims 42-46 have been added and should be allowed for at least similar reasons as explained with respect to claim 1.

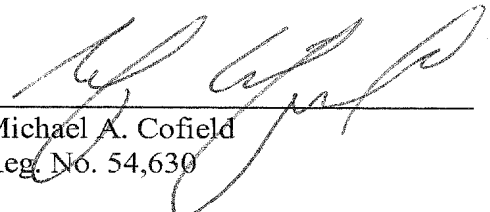
Conclusion

For the foregoing reasons, the applicants request reconsideration and allowance of the remaining claims. The applicants encourage the examiner to telephone the undersigned at (503) 224-2170 if it appears that an interview would be helpful in advancing the case.

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Respectfully submitted,

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